367.40119X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: M. HANNUKSELA

Serial No.:   Not yet assigned

Filed: May 15, 2001

For: VIDEO CODING

Group: Not yet assigned

Examiner: Not yet assigned

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents   May 15, 2001
Washington, D.C.   20231

Sir:

     Prior to examination, please amend the above-identified

application as follows.

IN THE SPECIFICATION

     Please replace the paragraph beginning at page 27, line

1, with the following rewritten paragraph:

--   The invention is not intended to be limited to the video

coding protocols discussed above: these are intended to be

merely exemplary. The invention is applicable to any video

coding protocol in which temporal prediction may be used. The

addition of the information as discussed above allows a

receiving decoder to determine that a reference picture has

been lost and to take appropriate action. --

IN THE CLAIMS

Page 28, line 1, insert --What is claimed is:--.

Please amend the claims as follows:

4.   (Amended) A method according to claim 1, wherein the indicator is included in a picture header.

12.   (Amended) A portable radio communications device including at least one of a video encoder and a video decoder,

wherein said video decoder comprises:

an input for receiving a video signal representing a sequence of pictures and for generating encoded pictures, said encoder being arranged to employ both non-temporal prediction and temporal prediction, wherein the encoder is arranged, for each picture that forms a reference picture for the temporal prediction of another picture, to associate with each reference picture an indicator indicating the temporal order of the reference picture in the encoded video signal relative to other reference pictures in the encoded video signal, and

wherein said video decoder comprises:

an input for receiving an encoded video signal representing a sequence of pictures, a decoder for decoding each received picture, the decoder being arranged to examine for each picture to be decoded that forms a reference picture

2

for another picture an indicator representing the temporal

order of a reference frame and, when the indicator does not

follow consecutively from an immediately preceding decoded

reference frame, to detect a lost reference frame.

Please add new claim 13 as follows:

--   13.   A video encoder according to claim 12, further

comprising means for incrementing the indicator each time a

reference picture is encoded.--

IN THE ABSTRACT

Please amend the Abstract as follows:

A method of encoding a video signal representing a

sequence of pictures, the method employing both non-temporal

prediction and temporal prediction, wherein the method comprises,

for each picture that forms a reference picture for the temporal

prediction of another picture, associating with each such picture

an indicator indicating the temporal order of the reference

picture in the encoded video signal relative to the other

reference pictures in the encoded video signal.

3

REMARKS

Attached hereto is a marked-up copy version of the changes made to the specification, claims and abstract by the current Amendment. The attached page is captioned "**Version with markings to show changes made**".

Entry of the above amendments prior to examination is respectfully requested.

Please charge any shortage in fees due in connection with the filing of this paper, or credit any overpayment of fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (367.40119X00).

Respectfully submitted,

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4

Version with markings to show changes made

IN THE SPECIFICATION

Please replace the paragraph beginning at page 27, line 1, with the following rewritten paragraph:

-- The invention is not intended to be limited to the video coding protocols discussed above: these are intended to be merely exemplary. The invention is applicable to any video coding protocol in which temporal prediction may be used. The addition of the information as discussed above allows a receiving decoder to determine that a reference picture has been lost and to take appropriate action. --

~~What is claimed is:~~

IN THE CLAIMS

Page 28, line 1, insert --What is claimed is:--.

Please amend the claims as follows:

4. (Amended) A method according to ~~any preceding~~ claim 1, wherein the indicator is included in a picture header.

12. (Amended) A portable radio communications device including ~~an~~ at least one of a video encoder ~~according to claim 9~~

1

~~or 10 and/or a~~ and a video decoder ~~according to claim 11~~,

wherein said video decoder comprises:

an input for receiving a video signal representing a sequence of pictures and for generating encoded pictures, said encoder being arranged to employ both non-temporal prediction and temporal prediction, wherein the encoder is arranged, for each picture that forms a reference picture for the temporal prediction of another picture, to associate with each reference picture an indicator indicating the temporal order of the reference picture in the encoded video signal relative to other reference pictures in the encoded video signal, and

wherein said video decoder comprises:

an input for receiving an encoded video signal representing a sequence of pictures, a decoder for decoding each received picture, the decoder being arranged to examine for each picture to be decoded that forms a reference picture for another picture an indicator representing the temporal order of a reference frame and, when the indicator does not follow consecutively from an immediately preceding decoded reference frame, to detect a lost reference frame.

2

IN THE ABSTRACT

Please amend the Abstract as follows:

VIDEO CODING

A method of encoding a video signal representing a sequence of pictures, the method employing both non-temporal prediction and temporal prediction, wherein the method comprises, for each picture that forms a reference picture for the temporal prediction of another picture, associating with each such picture an indicator indicating the temporal order of the reference picture in the encoded video signal relative to the other reference pictures in the encoded video signal.

Fig 5

3